



Embracing the Science of Reading to Improve Student Outcomes

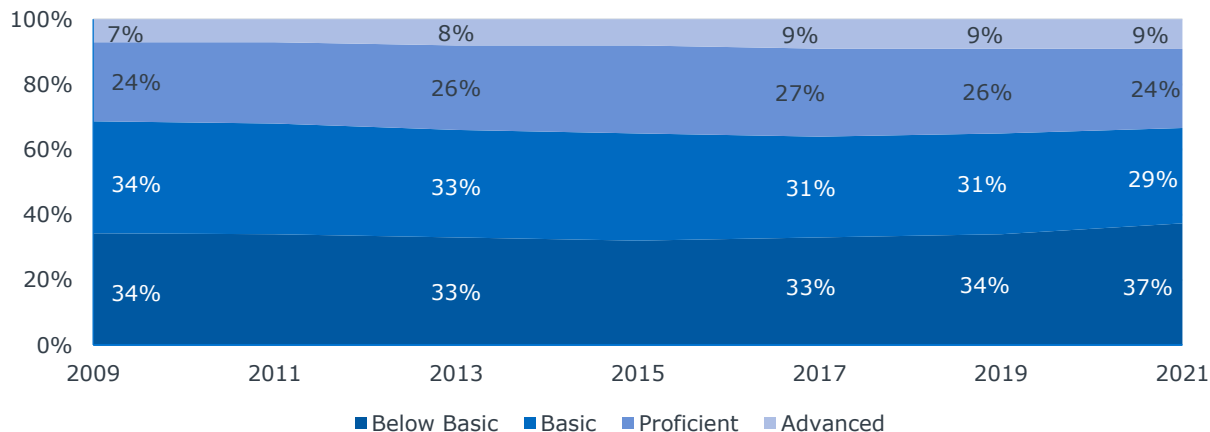
Narrowing the 3rd Grade Reading Gap

District Leadership Forum

Nation's Poor Reading Scores Drop Further



Percent of 4th Grade Students Scoring at Each Achievement Level on NAEP Assessment, 2009-2021



Minimal Growth in Reading Outcomes Over the Last Decade

42%

Of 9-year-olds in 2020 say they read for fun on a daily basis, the lowest levels since the mid-1980s

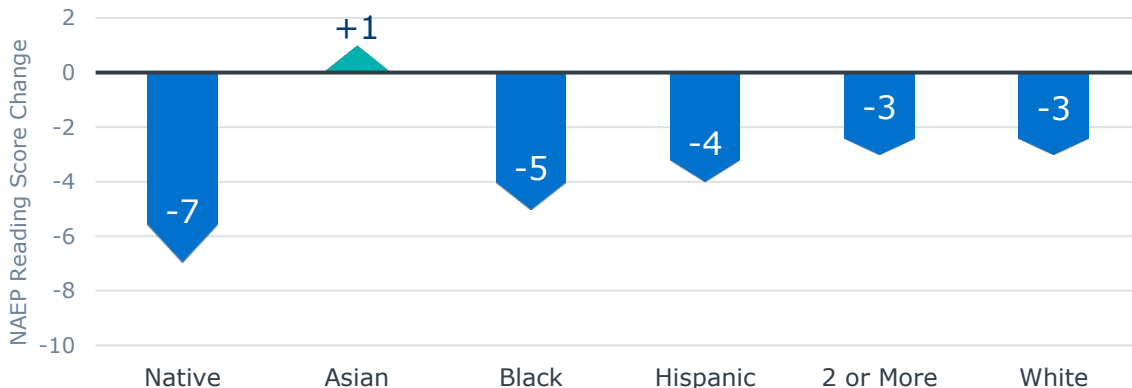
66%

Of 4th graders read **at or below basic** levels according to NAEP in 2021

Reading Scores Decline Across Many Student Groups

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Average NAEP Score Change Among 4th Graders from 2020 to 2022



A Significant Share of Students from Highly Educated Families Struggle to Read



30%

Of struggling readers come from households with at least one **college-educated parent**

Source: The Nation's Report Card, 2018, [NAEP Data Explorer](#); The Nation's Report Card, 2022, [NAEP Reading Highlights](#); APM Reports, 2018, [Hard Words: Why Aren't Kids Being Taught to Read?](#); EAB interviews and analysis.

Poor Reading Outcomes Are Costly

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Failing to Address the Issue Is Problematic For Students...

Struggle to Learn Other Subject Areas

3rd

Grade marks the shift to reading to learn. Students' reading ability becomes essential to success in other subjects.

Rarely Catch Up In Reading

75%

Of students who do not read proficiently by 3rd grade never reach reading proficiency in future grades



Less Likely to Attend College

54%

Decrease in likelihood that struggling readers in 3rd grade will attend college, compared to their more proficient peers

Face Challenges Finding Living Wage Jobs

130M

Adults in the nation today read at or below the 6th grade level, even though most living-wage jobs require proficient readers

...And Costly For Districts, Particularly in States with Retention Laws

17

Number of states requiring districts to retain third graders who do not meet reading standards as of 2019

\$13K

Average per pupil cost to retain students in 2022

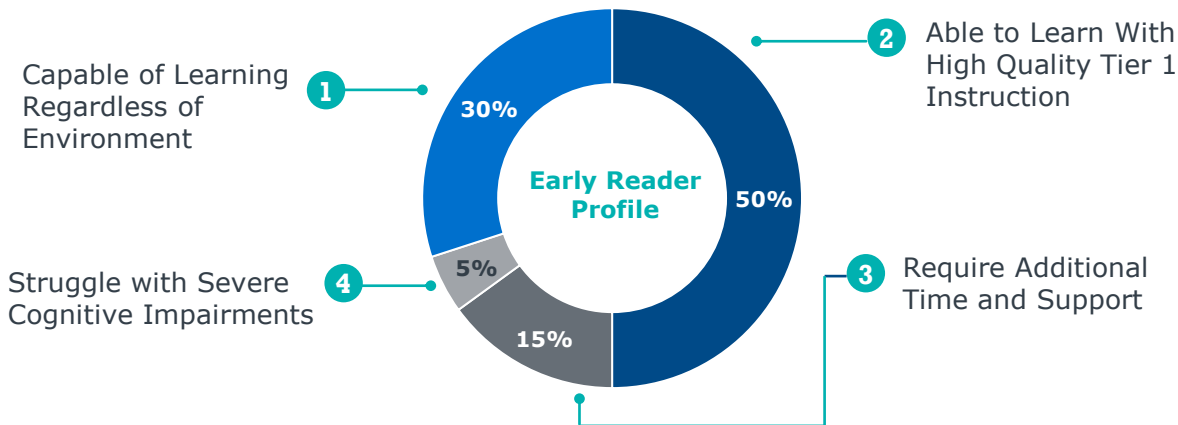
Source: Education Commission of the States. (2017) "[Creating Preventative, Rather Than Reactive, Policies to Boost Third Grade Literacy](#)"; US Department of Education, America Reads Challenge (1999). "[Start Early, Finish Strong: How to Help Every Child Become a Reader](#)"; Ann E. Casey foundation. (2010) "[Early Warning: Why Reading by the End of Third Grade Matters](#)"; Arellano, A et al. (2015) "[Michigan Achieves: Becoming a Top Ten Education State](#)," The Education Trust; Center For Public Education, (2015) "[Learning to Read, Reading to Learn](#)"; Gallup. (2020) "[Assessing the Economic Gains of Eradicating Literacy Nationally and Regionally in the United States](#)"; Education Data Initiative. (2022) "[U.S. Public Education Spending Statistics](#)"; EAB interviews and analysis.

Truth Be Told: There's No Excuse for Poor Outcomes

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Almost All Students Have the Cognitive Capacity to Read

Distribution of Early Readers' Cognitive Ability, According to the National Institutes of Health



95%

Of elementary students, regardless of background, are cognitively capable of learning to read when they receive sufficient direct instruction on the foundational skills of reading

District-Funded Initiatives Appear Insufficient

Districts Invest Significant Time and Resources on Reading...



Extending School Days
or Literacy Time Blocks



Hiring Literacy Specialist
or Instructional Coaches



Updating Instructional
and Curricular Materials



Purchasing 1:1 Reading-
Related Technology

...Yet Often See Minimal Lasting Results



"It feels like we've tried everything and anything to improve reading, but nothing seems to really work. In the end, we keep seeing very similar outcomes."

Superintendent, Southwest District

Pre-K Helpful, But Not Sufficient



Key Findings Regarding the Effects of Pre-K on Reading, Vanderbilt Peabody Study (2015)¹

- Improves kindergarten readiness
- Effects on reading are not sustained

Key Findings on the Effects of Pre-K on student achievement, Brookings Institution (2018)

- Increasing pre-K enrollment by 10% would raise a state's NAEP score by <1 point

¹ Most recent RCT and longitudinal study examining the effects of Pre-K on reading outcomes; N=1070 students attending publicly funded preschools in Tennessee. ©2022 by EAB. All Rights Reserved. eab.com

Good News: Science Provides a Blueprint for Reading ⁷



Decades of Neuroscience Research Provides Insight on How Students Learn to Read

42 Research centers nationwide examine reading-related brain activity

30 Years of brain-based research dedicated to learning to read

“

Science Has Implications For How to Teach Reading...

“We [NICHD] have multidisciplinary [research] teams—including cognitive neuroscientists and pediatricians—who have developed a body of information on reading and the brain that can inform practice in schools and policy.”

Dr. G. Reid Lyon
*National Institute of Child Health
and Human Development*

”

“

...And How Schools Can Help Struggling Readers Read

“Every year, there are hundreds of newly published, scientifically oriented research reports on reading...There is ample research that shows how weak readers can make substantial reading gains, with a fairly large percentage developing normalized reading skills.”

Dr. David Kilpatrick
Professor of Psychology, SUNY¹ Cortland

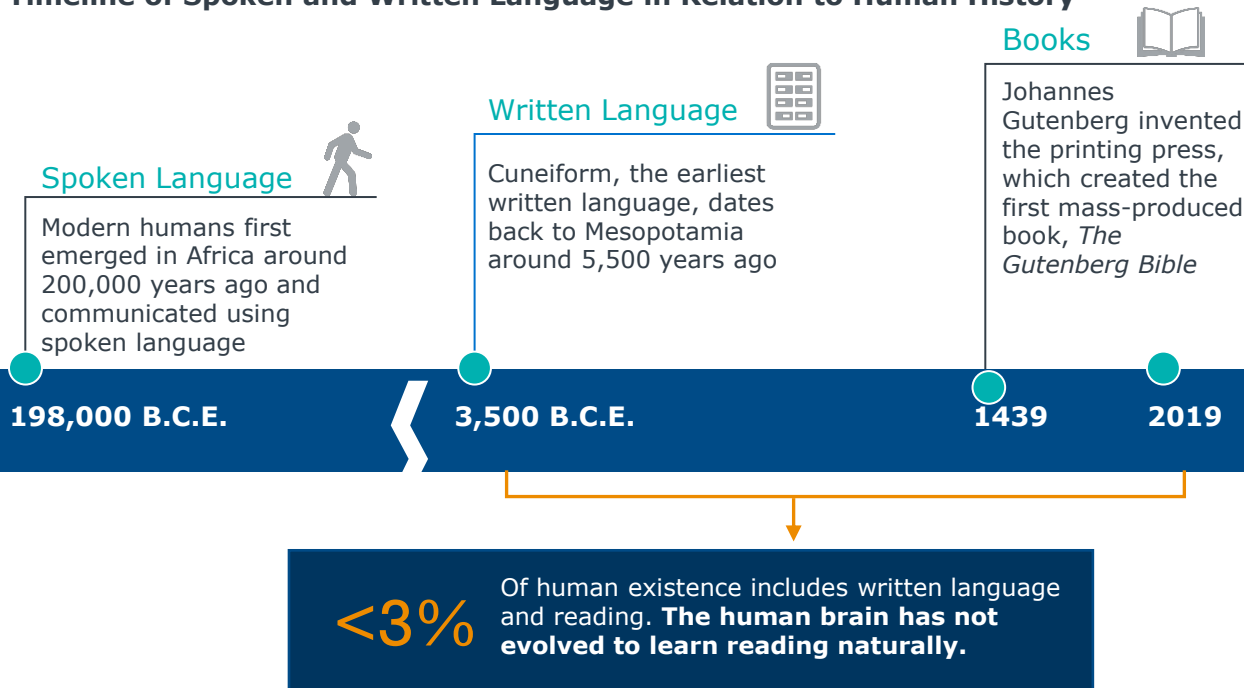
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Source: Boulton, D (2015) “An Interview with Dr. G. Reid Lyon— Converging Evidence—Reading Research What it Takes to Read;” Loyd, G. (2009) “Reading Difficulties: Prevention, Early Intervention, and Remediation; Kilpatrick, D. (2015) “[Essentials of Assessing, Preventing, and Overcoming Reading Difficulties](#),” EAB interviews and analysis.

Human Brains Are Not Naturally Wired to Read

Reading and Writing Are Relatively Recent in the Span of Human Existence

Timeline of Spoken and Written Language in Relation to Human History



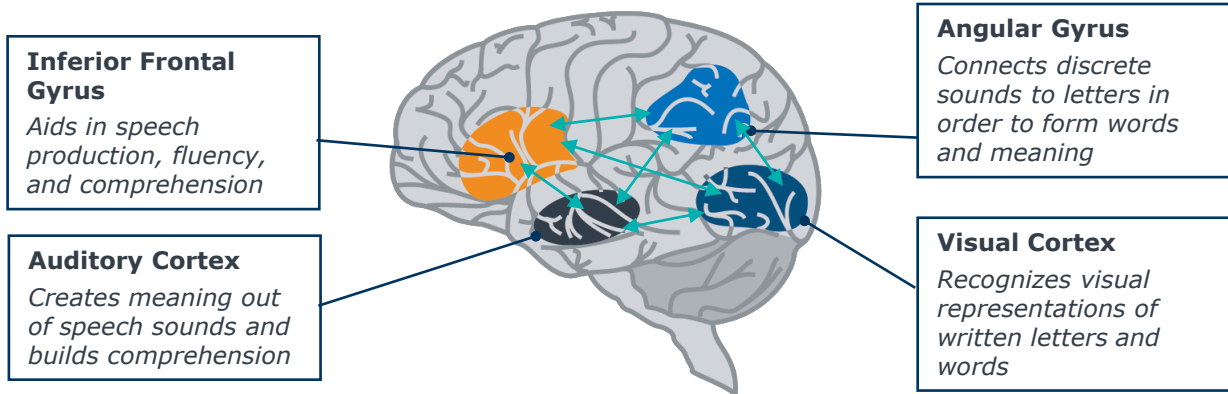
Source: Ritchter, D. et al. (2017) "[The Age of Hominin Fossils from Jebel Irone, Morocco and the Early Stone Ages](#)"; Spar, I. (2004) "[Histories of Writing](#)," [The Metropolitan Museum of Art](#); EAB interviews and analysis.

Critical Brain Regions Must Work Together

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Reading Requires Building Neural Circuits Across Critical Brain Regions

Regions of the Brain Activated While Reading, as Viewed in fMRI¹ Scans



Early Reading Instruction that Builds Neural Pathways Is Essential



The quality of reading instruction impacts a child's white matter development—the neural pathways that connect areas of the brain

56%

Of variance in reading outcomes is accounted for by the change in volume in white matter between kindergarten and 3rd grade

Source: Konnikova, M (2015) "[How Children Learn to Read](#)," The New Yorker; Myers, C (2014) "[White Matter Morphometric Changes Uniquely Predict Children's Reading Acquisition](#);" Seidenberg, M (2017) *Language at the Speed of Sight: How We Read, Why So Many Can't, and What Can Be Done About It*; EAB interviews and analysis.

¹ fMRI= Functional Magnetic Resonance Imaging

Research Confirms: Strong Readers Decode

Research Distinguishes Strong From Poor Readers



Key Differences Between Strong and Poor Readers, According to Numerous Studies

1 Strong readers rely heavily on decoding skills

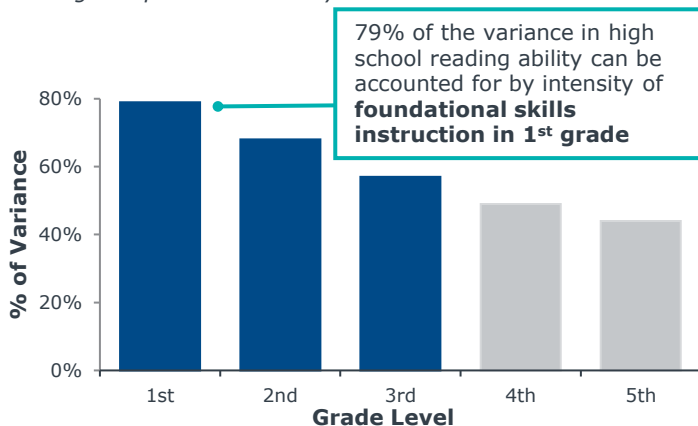
- Adelman (2012)
- Frost (1998)
- Gringirenko & Naples (2008)
- Halderman, et al. (2012)
- Pugh & McCardle (2009)
- Share (1995)

2 Poor readers rely heavily on context clues

- Corkett & Parrila (2008)
- Nation & Snowling (1998)
- Rack et al. (1992)
- Van Den Broeck & Geudens (2012)

A Focus on Foundational Skills¹ in Early Grades is Essential for Future Reading Success

Influence of Early Decoding Skills-Focused Instruction on Reading Comprehension Ability in Later Grades²



87% Of English words are either fully or easily decodable³

- 1) Phonological awareness, print concepts, phonics/word recognition, and fluency
- 2) Results from a ten-year longitudinal study out of Yale University; n=445 randomly selected kindergarten students.
- 3) 50% of English words are fully decodable; 37% of words are mostly decodable with the exception of one sound, many of which can be solved by knowledge of prefixes, roots and suffixes

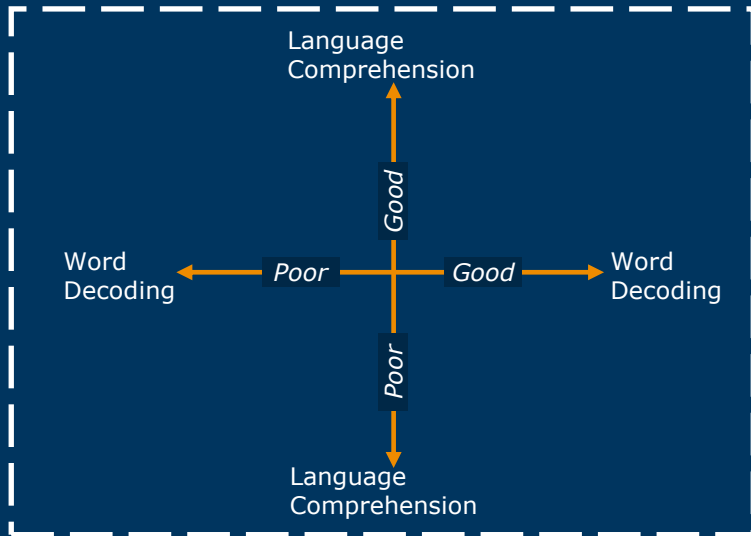
Source: Shaywitz, et al., (1999) "Persistence of Dyslexia: the Connecticut Longitudinal Study at Adolescence;" Student Achievement Partners, "[Foundational Skills Guidance Documents: Grades K-2](#)"; Kilpatrick, D. (2015) "Essentials of Assessing, Preventing, and Overcoming Reading Difficulties"; Reed, D. (2016), "[The Importance of Phonics Instruction For All Students](#)," Iowa Reading Research Center" EAB interviews and analysis.



The Simple View of Reading

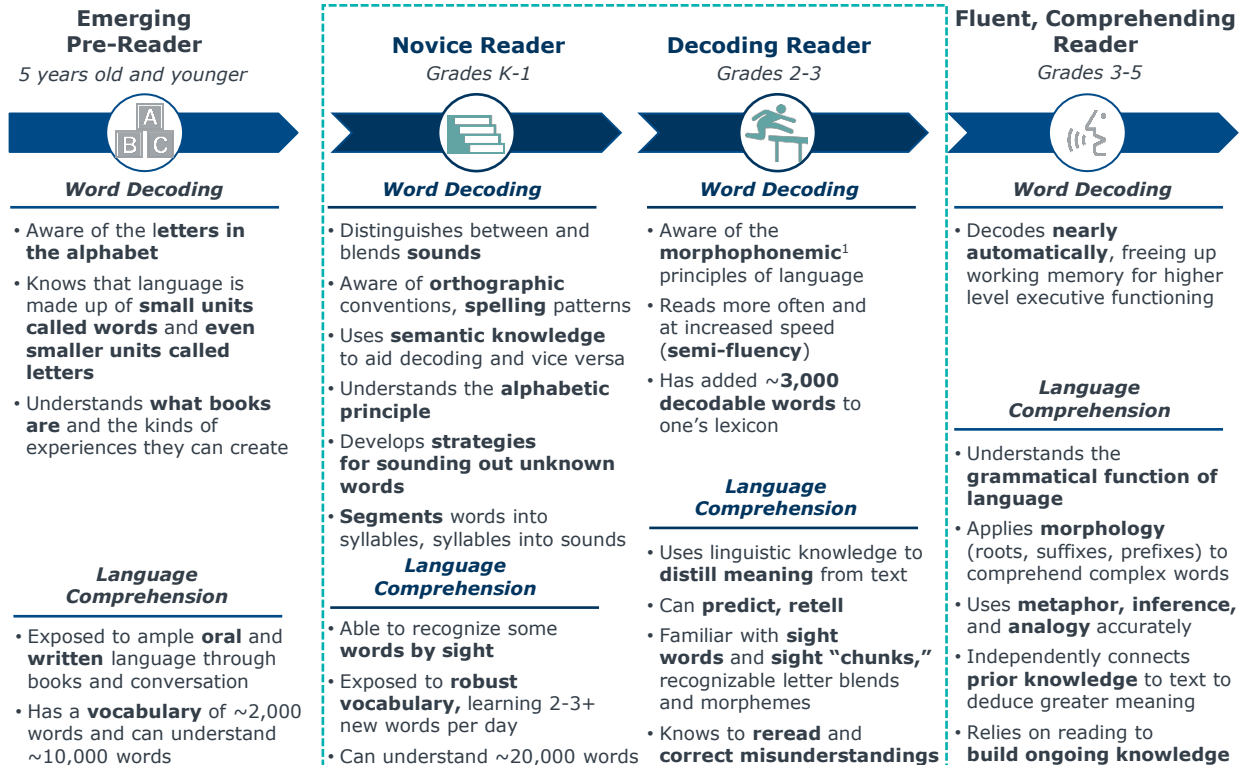
Research-Based Equation for How Students Learn to Read

Reading Comprehension = Word Decoding X Language Comprehension



Reading Mastery Is an Ongoing Progression

Phases of a Student's Reading Development



1) The relationship between sounds and word units and the rules that govern their pronunciation ©2022 by EAB. All Rights Reserved. eab.com

Source: Wolf, M, Proust and the Squid: The Story and Science of the Reading Brain, 2007; Temple et al., All Children Read: Teaching for Literacy in Today's Diverse Classrooms, 4th ed., 2010; Virtual Speech Center, "Speech and Language Development Milestones," 2018; Loraine, S, "Vocabulary Development," (2008); Lyon, R., "Reading Difficulties: Prevention, Early Intervention, and Remediation," Southern Methodist University, 2009; EAB interviews and analysis.

Most Reading Instruction Fails to Align with Science

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Limitations of Status Quo Early Elementary Reading Instruction



Unfamiliarity with Foundational Reading Skills

60%

Of elementary teachers have **never been trained** in strategies for teaching phonemic awareness, phonics, vocabulary, fluency and comprehension



Oversimplified Phonemic Awareness

95%

Of early elementary classrooms **spend insufficient time** providing direct instruction on all English phonemes¹



Overemphasis on Using Context Clues for Decoding

80%

Of early elementary teachers **encourage students to use pictures or context clues** to identify unfamiliar words

“A look at the research reveals that **the methods commonly used to teach children to read are inconsistent with basic facts about human cognition and development...**”

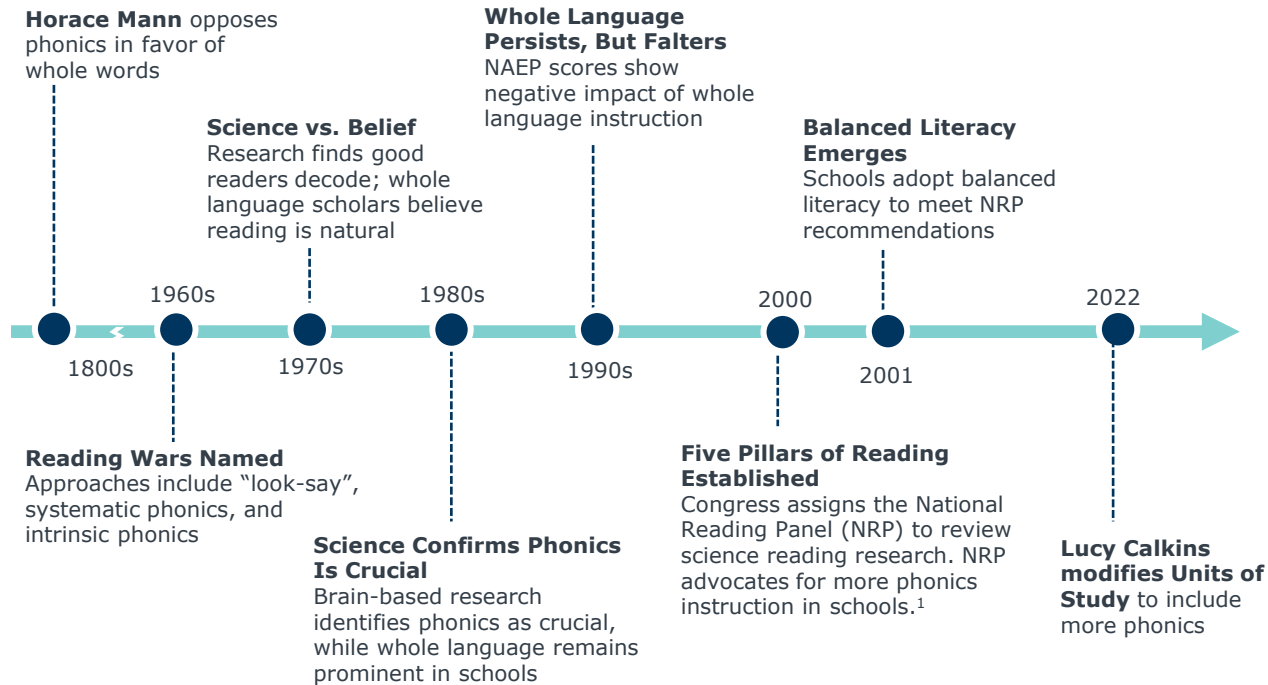
Mark Seidenberg, Cognitive Neuroscientist, University of Wisconsin-Madison

1) In fact, most 2nd-4th grade curricula and assessments stop monitoring phonemic awareness, even though phonics skills continue to develop through fourth grade (David Kilpatrick, 2015)

Source: Kilpatrick, D (2015) “Essentials of Assessing, Preventing, and Overcoming Reading Difficulties;” Seidenberg, M. (2018) “Language at the Speed of Sight: How We Read, Why So Many Can’t, and What Can Be Done About It;” EAB interviews and analysis.

Reading Wars Overshadow Brain-Based Research

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1) The NRP recommends the five reading pillars: phonemic awareness, phonics, vocabulary, fluency, and reading comprehension

Higher Education Inadequately Prepares Teachers

Most Schools of Education Fail to Prepare Educators to Teach Reading

31%

Of teacher prep programs devote no coursework to reading science¹

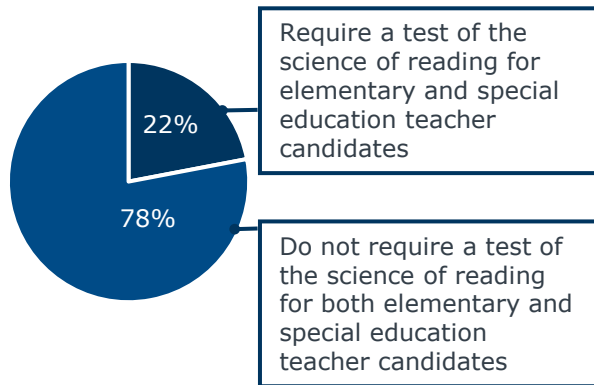
23%

Of graduate elementary education programs teach scientifically-based reading methods

39%

Of undergraduate elementary education programs provided instruction in all 5 components of reading²

% of State Teacher Licensing Exams That Test Teachers' Reading Knowledge (n=51)



“What these programs most often teach is not to adopt the whole language approach, but that the candidate should develop her *own* approach to teaching reading, based on exposure to various philosophies and approaches, none more valid than any other.”

Kate Walsh, President, NCTQ
21st-Century Teacher Education

1) N = 72 teacher preparation program syllabi.

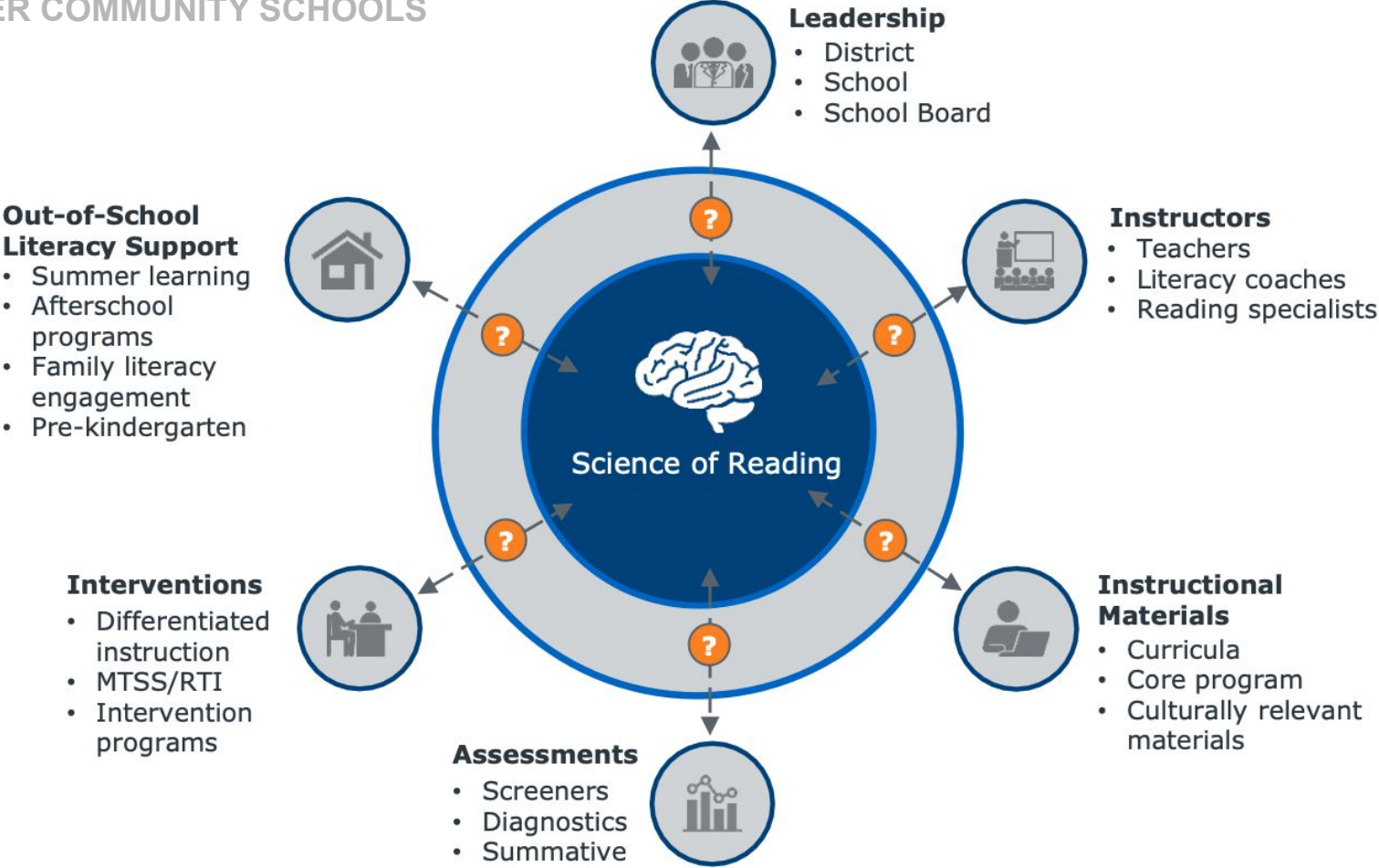
2) N = 820 undergraduate elementary education programs.



DEXTER COMMUNITY SCHOOLS

Path to the Science of Reading

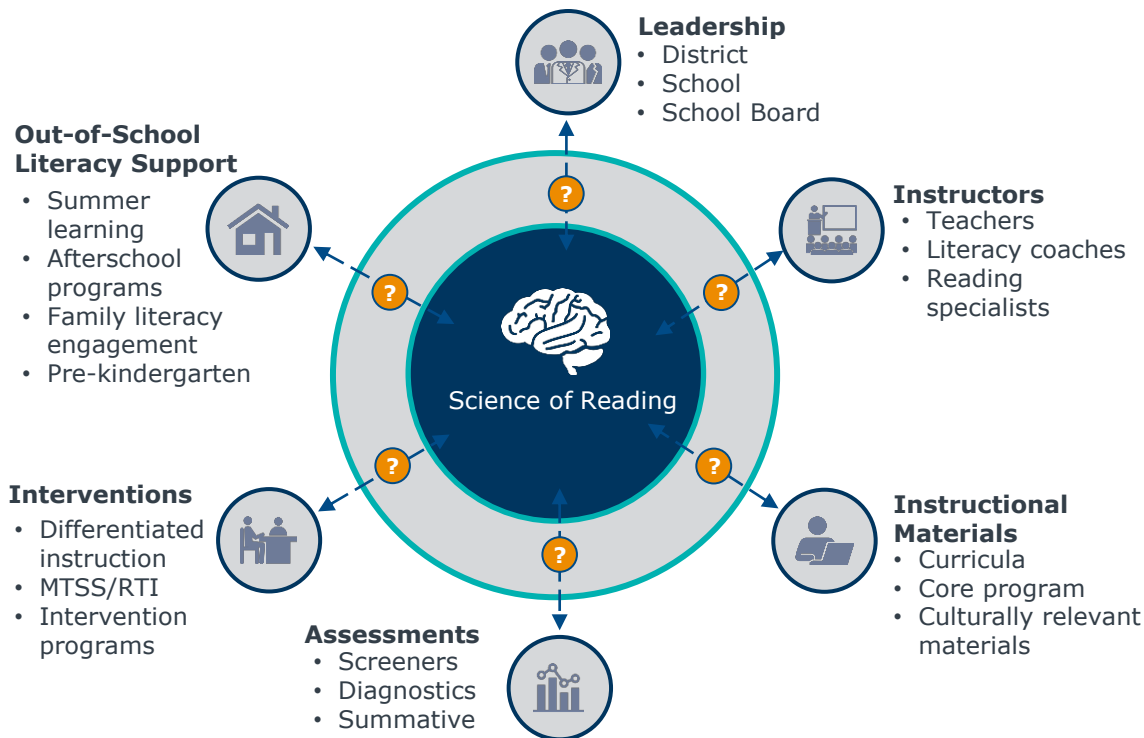
DEXTER COMMUNITY SCHOOLS



Reading Systems Remain Disconnected from Science

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Science Has Had Little Impact on What Happens in Schools



LEADERSHIP

- LETRS Training and LETRS Training for Administrators
 - The Lexia LETRS (Language Essentials for Teachers of Reading and Spelling) Suite is comprehensive professional learning designed to provide early childhood and elementary educators and administrators with deep knowledge to be literacy and language experts in the science of reading
- EAB Science of Reading Presentations
- EAB Science of Reading Community Forum
- Participation and facilitation of Y5-4 ELA Team
- Acadience Reading Universal training



INSTRUCTORS

- LETRS Training ~ 30% of Y5-4 staff
 - Support for staff to participate in this training
- SIPPS Coaching Accreditation
- Acadience Coaching Accreditation
- DCS Literacy Coach Participation in WISD ELF (Early Literacy Foundations) taskforce
- Acadience and Science of Reading Training for Kindergarten, Interventionists, Coaches and Special Educators
- Focus on GELN (General Education Leadership Network) Literacy Essentials with Y5-4 staff



INSTRUCTIONAL MATERIALS

- Adoption of Reading Horizons Phonics Program in K-4
- Utilization of Heggerty Phonemic Awareness Program in Y5-K
- Zoo-Phonics in Y5
- \$30,000 purchase and instructional emphasis of decodable texts
 - Books that contain the specific grapheme–phoneme correspondences students have learned.
- Implementation of Lexia Core 5 for all K-2 students
 - Lexia Core 5 is an adaptive blended learning program that accelerates the development of literacy skills
- Revision of current curricular resources to respond to the Science of Reading
 - Removal of problematic practices (three-cueing, MSV)
- SIPPS (Systematic Instruction in Phonological Awareness, Phonics, and Sight Words) for Reading Intervention in K-2
- Sonday for Special Education
- Current curricular review of ELA core materials



ASSESSMENTS

- Adoption of Acadience Reading Universal Screener in Kindergarten.
 - What types of support a student needs
 - What specific skills educators should focus on for instruction or intervention
 - What instructional strategies they should implement
- Expansion of Acadience Reading Universal Screener to grades 1-2 in 2023-2024
- Further learning and utilization the four purposes of assessment:
 - Screener Assessments
 - Diagnostic Assessments
 - Progress Monitoring Assessments
 - Outcomes Measures
- Instructional Rounds
- Data Rounds
- Improved identification and monitoring of students identified for Reading Intervention



INTERVENTIONS

- Adoption of SIPPS (Systematic Instruction in Phonological Awareness, Phonics, and Sight Words) in grades K-2
- Emphasis on small-group, differentiated instruction
- Solidification of MTSS systems and structures across the district
- Utilization of Heggerty Phonemic Awareness for Tier 2 interventions for some students in grades 1-2
- Collaborative work and goals between interventionists and teachers to meet the needs of all students



OUT OF SCHOOL LITERACY SUPPORTS

- Literacy event for Y5-2 intervention families led by Y5-2 Interventionists
- Home & School Reading partnership for extending students' learning
- Title I intervention conferences led by 3-4 Interventionists
- At home Lexia Core 5 access in K-2
- Summer Learning Institute focused on high-impact tutoring practices (SIPPS)

